WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, comprising:

forming a collector layer of a first conductivity type;

forming a base region of a second conductivity type formed on a top surface of said collector layer of said first conductivity type, said first conductivity type being opposite said second conductivity type,

said base region being formed as a single region having uniform depth thereof;

forming a groove in a top surface of said base region at a portion thereof; and

forming an emitter region of said first conductivity type in said base region at a bottom surface of said groove.

2. A method of manufacturing a semiconductor device according to claim 1, wherein said base region on said top surface of said collector layer is formed by using an epitaxial growth technology.

3. A method of manufacturing a semiconductor device according to claim 1, wherein said base region is formed on said top surface of said collector layer by a diffusion of impurities at a prescribed diffusion depth.

4. A method of manufacturing a semiconductor device according to claim 1, wherein said base region has a flat bottom surface beneath said emitter region and beneath a base electrode.

5. A method of manufacturing a semiconductor device according to claim 1, further comprising:

forming spacers on sidewalls in said groove;

forming a diffusion source film in said bottom surface of said groove to be embedded therein between said spacers; and

forming said emitter region of said first conductivity type formed in said top surface of said base region at a bottom of said diffusion source film between said spacers.

6. A method of manufacturing a semiconductor device according to claim 5, further comprising:

forming a base electrode on said top surface of said base region around said portion of said groove; and

an emitter electrode on said surface of said diffusion source film.

7. A method of manufacturing a semiconductor device according to claim 6, wherein said base electrode and said emitter electrode are formed of aluminum material.

8. A method of manufacturing a semiconductor device according to claim 1, wherein said diffusion source film is a polycrystalline silicon layer having impurities for emitter diffusion.